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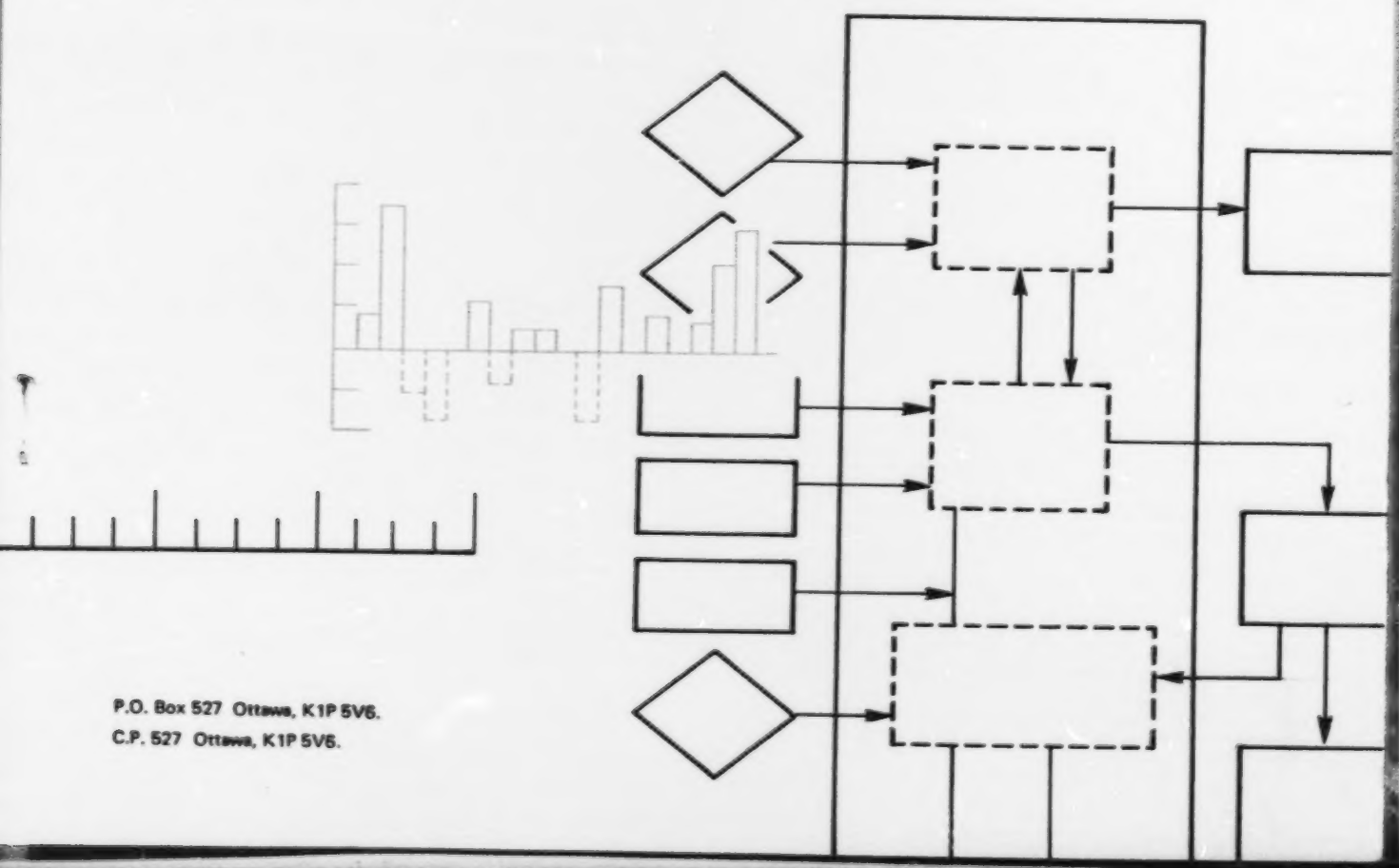

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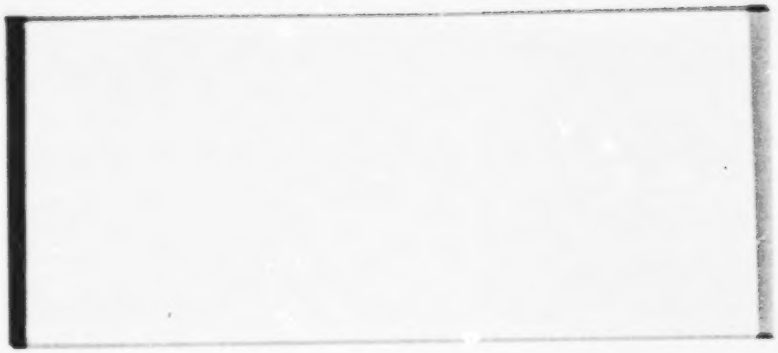

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DISCUSSION PAPER NO. 213

# Provincial Involvement in Regulating the Business Cycle: Justification, Scope and Terms

by Pierre Fortin*

*The author is indebted to David Sewell, Neil Swan and Richard Zuker for their suggestions and comments. He also wishes to thank the Economic Council of Canada and the Social Sciences and Humanities Research Council of Canada for their financial support.

*The findings of this Discussion Paper are the personal responsibility of the author and, as such, have not been endorsed by Members of the Economic Council of Canada.*

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## Résumé

L'importance relative des budgets provinciaux dans l'économie étant considérable, ils influent largement sur la conjoncture des régions et du pays, que ce soit de façon accidentelle ou recherchée. S'appuyant sur le principe de la diversification des instruments en théorie de la politique économique, l'auteur démontre d'abord pourquoi et comment l'économie s'éloigne de l'optimum social si les provinces renoncent à l'usage de leurs budgets à des fins régulatrices nationales et régionales, en supposant, bien sûr, que la politique conjoncturelle en général peut jouer efficacement son rôle de stabilisation de l'emploi et de la production malgré les délais, les incertitudes et les contraintes qui entourent sa mise en oeuvre.

En second lieu, il écarte l'argument traditionnel voulant que les "fuites par l'importation" atténuent sensiblement la taille des effets multiplicateurs au niveau provincial et détruisent la pertinence de la participation des provinces à la régulation conjoncturelle. A cette fin, il calcule que les multiplicateurs provinciaux sont relativement élevés par comparaison aux multiplicateurs fédéraux (75 à 90 pour cent) malgré les fuites par l'importation. Il minimise aussi la portée de l'argument en faisant observer qu'un multiplicateur plus faible atténue également la portée des chocs conjoncturels à compenser et celle des mesures compensatrices elles-mêmes.

L'auteur insiste par ailleurs sur la distinction essentielle entre l'exercice coopératif de la responsabilité conjoncturelle des provinces, qui exige un partage de l'information entre le gouvernement fédéral et les provinces sur les perspectives économiques, sur les objectifs respectifs des divers intervenants et sur les mesures monétaires et budgétaires à envisager, d'une part; et la concordance des opinions sur les mesures souhaitables elles-mêmes, d'autre part. L'auteur croit qu'en régime fédéral, les divergences d'opinion occasionnelles sont inévitables et qu'il

serait inutile et dangereux que le fonctionnement de l'appareil de consultation et d'échange mis au point au Canada depuis 25 ans devienne plus contraignant pour les parties.

L'auteur examine enfin les propositions récentes qui visent, les unes à augmenter la sensibilité conjoncturelle des budgets provinciaux, et les autres à l'atténuer. Il s'oppose également aux deux types de propositions et leur préfère le statu quo. Réduire la stabilité budgétaire des provinces contredirait les objectifs fondamentaux de la régulation conjoncturelle. L'accroître ne paraît pas nécessaire dans les circonstances présentes et risquerait de transférer l'instabilité au niveau fédéral et d'engendrer des conflits intergouvernementaux inutiles.

## Abstract

The relative importance of provincial budgets in the overall economy cannot be underestimated: whether accidentally or on purpose, their have a significant impact on the national and regional business cycles. On the basis of the principle of the diversification of instruments in the theory of economic policy, the author shows, first, why and how the economy drifts away from the social optimum if the provinces reject any role for their budgets in national and regional stabilization policy. A natural prequisite for this proposition to be meaningful is that stabilization policy can still play a useful part in smoothing fluctuations in employment and output despite the lags, uncertainties and constraints preventing its full efficiency.

Secondly, the author dismisses the traditional "import-leakage" argument, according to which the greater propensity to import at the provincial level reduces the sizes of the provincial multipliers fairly significantly, and makes the involvement of the provinces in economic stabilization irrelevant. He computes provincial expenditure multipliers that are relatively high relative to the federal multipliers (75 to 90 per cent). Also, he minimizes the importance of the argument by noting that smaller multipliers decrease the impact of cyclical shocks as well as that of the offsetting policy measures.

The author argues that it is essential to make a clear distinction between the cooperative involvement of the provinces in economic stabilization, which requires the sharing of information between the federal government and the provinces on the economic outlook, the policy goals of the various decision makers, and the possible monetary and fiscal measures, on the one hand, and the actual achievement of a consensus on the desirable policy measures, on the other hand. The author believes that in a federation occasional differences of opinion cannot be avoided, and that it would be useless and dangerous to make the 25-year-old federal-provincial consultation and exchange apparatus more binding for the participants.

Finally, the author examines the recent proposals aiming sometimes to increase, and sometimes to decrease, the cyclical sensitivity of provincial budgets. He is equally opposed to the two binds of proposals and comes out in favour of the status quo. To diminish the cyclical stability of provincial budgets would contradict the basic thrust of stabilization policy. To increase it would not seem to be really needed in the present circumstances and would carry the risk of transferring instability to the federal budget and generating unnecessary intergovernmental conflicts.

The issue of the provinces' contribution to regulating Canada's national and regional economies essentially requires a cost-benefit analysis based on the classical theory of economic policy developed in the 1950s by J. Tinbergen, B. Hansen and H. Theil. Once we accept, as the following analysis will, that economic stabilization is a priority social objective and that government budgets can deliberately influence the economy, employment and prices, the only logical conclusion is that the provinces must become involved with the federal government in regulating the business cycle. The only remaining issues of interest, therefore, are the extent and limits of this involvement and the terms governing interprovincial and federal-provincial cooperation in this area.

## Social Optimum and the Provinces' Cyclical Role

If budget orientation can effectively influence the economy, failure to use the provincial budgets for this purpose would divert the economy from the social optimum in proportion to the budgets' relative importance in the entire public sector and in the economy as a whole.[1] Shifting the full burden of employment and price stabilization on to federal monetary and budget policies has three harmful consequences on the Canadian economy. First, in view of the caution normally exercised by governments in using the intervention instruments available to them, the Bank of Canada and the federal Minister of Finance acting alone extend the use of the money supply and budget for

regulatory purposes beyond what would be required in a context of provincial cooperation, but short of the level required for equally effective stabilization without the provinces' cooperation.

Second, an immediate consequence of the excessive use of federal intervention instruments is a poorer performance in achieving other major economic goals such as economic efficiency, improved income distribution and productivity support. Concentration of cyclical measures at the monetary level (interest and exchange rates) or solely at the federal budget level (income tax, transfers, expenditures on goods and services, loans) would inflict an undue proportion of the increased federal monetary and budgetary instability on some groups of economic agents, some industrial sectors and some regions, specifically those most directly and intensively affected by these federal measures. Unstable interest rates have an immediate impact on savings and investment; an unstable exchange rate seriously affects our exporting sectors and regions; corporate income tax profoundly influences corporate planning; federal sales tax has traditionally been concentrated in the manufacturing sector and is now concentrated in the energy sector as well; federal transfers to individuals primarily affect the unemployed and the elderly; one third of all federal expenditures on goods and services are spent on national defence and federal loans play a determining role in the housing industry.

Third, the loss of social return through exclusion of the provinces from the field of stabilization policy is more acute where the provinces have a greater comparative advantage than Ottawa, in the truly regional aspects of economic stabilization. Advocating an explicit regional aspect in Canadian stabilization policy no longer raises many fundamental objections. Although synchronization of swings in the employment cycle does not differ systematically between Canada's regions, the magnitude of these fluctuations is generally greater in the Atlantic provinces, Quebec and British Columbia than in Ontario and the Prairie provinces. Similarly, the regional economies are occasionally subjected to internal disturbances that considerably alter the synchronization and magnitude of their cycle in relation to the norm.[2]

The problem is thus to determine whether Ottawa or the provinces can more effectively tackle the peculiarities of regional cycles, at a lower cost. The federal budget's regional cyclical impact varies greatly, in fact, depending on the location and industrial make-up of its expenditures on goods and services as well as on the regional value of a tax point, which is greater per capita in the rich than the poor provinces. While systematic use of the federal budget to meet the specific stabilization needs of the regions is not unthinkable, explicit regional differentiation of federal spending, transfer and taxation policy is costly in terms of economic efficiency and politically unthinkable, except on a scale that would be too

small to have any significant impact, as in the case of investment tax credits or conditions of eligibility for unemployment insurance benefits. Thus, the provinces must not only assist the federal government in stabilizing the national economy, they must also accept primary responsibility for dealing with specific regional needs related to the cycle.

The failure to achieve the social optimum, resulting from the provinces' absence from the field of economic stabilization, is explained by a fundamental principle of economic policy theory: the principle of diversification of instruments of intervention. In a situation where the number of economic objectives far exceeds the number of instruments available to governments, all instruments must generally be applied in a manner that respects all objectives, as the inability of an instrument to take a particular objective into account automatically results in a loss of social return. This principle takes on even more importance in a dynamic economy and where there is uncertainty over the evolution of exogenous variables and the exact value of the multiplier effects.[3]

For the last 15 years, macroeconomic thought in Canada has favoured provincial participation in regulation of the cycle. The Carter Report opposed provincial attempts to regulate the cycle only when they were made without any true interprovincial and federal-provincial cooperation.[4] Following Barber's 1967 proposal to bar cyclical intervention by the provinces, Canadian

researchers renewed their efforts to determine the scope, limits and terms of application of this provincial involvement and of the intergovernmental cooperation it implied rather than to question its relevance.[5] Moreover, the budgets of several provinces in the 1970s, particularly the four largest (Ontario, Quebec, Alberta and British Columbia) reflected cyclical concerns on several occasions and the federal government sought the provinces' cooperation on at least one occasion for cyclical purposes, during the 1978 sales tax cut. These observations differ markedly from the U.S. school of thought, as the states have not participated in economic stabilization and little theoretical or practical interest has been shown in such measures, primarily because the budget is more centralized at the federal level and because the states are smaller and more numerous (50). It should be remembered that the provinces' autonomous tax receipts are almost equal to Ottawa's. In addition, the two largest provinces account for 60 per cent of the national economy, and the four largest, 85 per cent. Cooperation is therefore more important and easier to achieve in Canada, ceteris paribus, than in the U.S.

## General Budget Policy Constraints

Even if we accept the principle of provincial involvement in economic stabilization, we must still recognize that the provinces' cyclical budget policy is subject to the same general constraints as the federal policy. It is important to first

identify the target levels of GNP or of the corresponding unemployment rate which the provincial or regional economy can achieve without running the risk of fueling inflation; this is usually known as the natural GNP or natural unemployment rate. The sum of the natural provincial GNPs or the average of the natural provincial unemployment rates must also be made compatible with the national target levels sought jointly by the two levels of government. Finally, care must be taken to avoid the extremes of utopian fine tuning of the national or regional economy or of irresponsible budget inflexibility with respect to serious disturbances of the economy. I recently summed up the most widely accepted current scientific view of this matter:

> "It would be possible to control the evolution of unemployment and inflation accurately over time only if we had the following information:
>
> - an accurate knowledge of where the economy is at any given time;
>
> - reliable forecasts of the random shocks affecting the economy and of its future trend; and
>
> - a widely shared understanding of the way the economy operates and the impact and time lags of monetary and fiscal policies.
>
> Even if we had this information, successful stabilization measures would require great flexibility of policy in both upturns and downturns. Their impact on the economy would also have to be swift and produce the desired effects without causing detrimental consequences to the distribution of income and to the operation of individual markets. If we had such tools available, we could seriously consider fine-tuning the economy to produce the price and employment results that would correspond best to social preferences. The mechanism would be comparable to the way in which the generation of electricity for the entire province is regulated from the central office of Hydro-Quebec.

However, numerous practical difficulties put such fine-tuning out of reach. When implementing their monetary and fiscal policies, governments are, in fact, confronted with numerous lags, constraints, and elements of uncertainty. This does not mean that stabilization policy is useless but rather that we are talking about rough-tuning rather than fine-tuning. These difficulties are discussed in detail in the following section."[6]

## The Empirical Importance of Import Leakages

Cyclical intervention by the provinces is therefore subject to the same general limits as federal intervention. Additional specific reasons for exercising caution have been cited, however, for the provinces. The first is based on "import leakages", which are larger at the provincial than the national level and proportionally reduce the value of the Keynesian multiplier for a province acting alone compared to the same value for the corresponding federal (or cooperative) measure.

Our analysis of this question will be based on a simplified Keynesian model of regional economies expressed by the following equations:

$$(1) \quad Y_i = A_i + F_i + P_i + c_i Y_i + \sum_{j=1}^{n} m_{ij} Y_j - m_i Y_i - \sum_{j=1}^{n} m_{ji} Y_i,$$

$$i = 1, 2, \ldots, n,$$

where:

$Y_i$ = income of region i

$A_i$ = autonomous private demand of region i

$F_i$ = federal expenditures on goods and services in region i

$P_i$ = provincial expenditures on goods and services in region i

$c_i$ = marginal propensity of region i to spend

$m_i$ = marginal propensity of region i to import from abroad, and

$m_{ij}$ = marginal propensity of region j to import from region i ($m_{ii} = 0$).

In matrix notation, we obtain:

(2) $My = a + f + p = x$

which translates to:

(3) $y = M^{-1}x$

where:

y = vector of $Y_i$ ( i = 1,2,...,n)

a = vector of $A_i$ ( i = 1,2,...,n)

f = vector of $F_i$ ( i = 1,2,...,n)

p = vector of $P_i$ ( i = 1,2,...,n) and

M = n order squared matrix whose typical element is

$$s_{ij} = \begin{cases} 1 - c_i + m_i + \sum_{j=1}^{n} m_{ji}, & i = j \\ -m_{ij}, & i \neq j, \quad i,j \quad 1,2,\ldots,n. \end{cases}$$

Since $1-c_i + m_i$ is positive for any i, the M matrix, known as The Metzler matrix, has a "dominant diagonal", which means that $\sum_{i=1}^{n} s_{ij} = 1-c_i + m_i > 0$ for any j. It is therefore regular and the typical element $\mu_{ij}$ of its inverse $M^{-1}$ is the value of the total multiplier effect over the income of region i (i = 1,2,...,n) arising from a $1 variation in the autonomous demand $A_j + F_j + P_j$ of region j (j = 1,2,...,n). It is obvious that the multiplier effect $\mu_{ij}$ incorporates not only the <u>direct</u> impact of a change of one in $x_j$ over the total demand of region i, but also the effects <u>induced</u> by the variation in exports from region i to all other regions, which results from the impact of the disturbance on total demand in those regions.

To focus our attention exclusively on the dependence of the multipliers $\mu_{ij}$ on the structure of regional and international trade, we will henceforth assume that the marginal propensity to spend $c_i$ is the same in all regions. This common value will be set at 0.48 and will be used basically to standardize the Canadian multiplier somewhere around the reasonable value of 1.5. The data on 1966 regional and international trade flows estimated by Richard Zuker are the basis for computing the propensities to import.[7] These are

the average propensities since they are equal to the simple ratio between the regional trade flows and gross domestic products. Five regions -- the Atlantic provinces, Quebec, Ontario, the Prairie provinces and British Columbia -- are numbered one to five respectively.

The results of the numerical calculations are recorded in the values of matrix M and its inverse $M^{-1}$:

$$(4)\ M = \begin{matrix} 0.978 & -0.013 & -0.007 & -0.003 & -0.002 \\ -0.124 & 0.890 & -0.093 & -0.058 & -0.049 \\ -0.192 & -0.180 & 0.858 & -0.156 & -0.142 \\ -0.013 & -0.019 & -0.030 & 0.861 & -0.052 \\ -0.005 & -0.005 & -0.006 & -0.034 & 0.840 \end{matrix}$$

and

$$(5)\ M^{-1} = \begin{matrix} 1.027 & 0.017 & 0.011 & 0.007 & 0.006 \\ 0.175 & 1.155 & 0.131 & 0.106 & 0.096 \\ 0.274 & 0.254 & 1.206 & 0.246 & 0.235 \\ 0.030 & 0.036 & 0.046 & 1.176 & 0.083 \\ 0.011 & 0.010 & 0.012 & 0.050 & 1.196 \end{matrix}$$

For example, element $s_{32} = -0.180$ of matrix M is the negative of the propensity of region 2 (Quebec) to import from region 3 (Ontario). Element $s_{55} = 0.840$ of M is the inverse of the actual multiplier effect (equal to 1.190) that would prevail in region 5 (British Columbia) if we did not take into account the direct impact of a change of one in $x_5$ over $y_5$ and

excluded the effects induced by interaction with the other regional economies. The element $\mu_{21} = 0.175$ of matrix $M^{-1}$ is the multiplier effect on region 2 (Quebec) of a change of one in the total demand for region 1 (the Atlantic provinces). The element $\mu_{44} = 1.176$ of $M^{-1}$ is the total actual multiplier effect (direct and induced) on region 4 (the Prairie provinces) of a change of one in $x_4$.[8]

The "import leakages" argument is based on the comparison between the actual multiplier of an injection of $1 into a given region acting alone, in other words, the corresponding diagonal element of matrix $M^{-1}$, and the actual multiplier of an identical injection of $1 into the region accompanied by parallel injections in the other regions in amounts conforming to the usual regional distribution of federal expenditures or income taxes. To simplify matters in the latter case, we have assumed that the regional structure of federal injections reflects the regional distribution of the 1966 gross domestic products of regions 1 to 5 (0.065, 0.258, 0.402, 0.168 and 0.107, respectively). For each region i, then, the injection vector $x^i$ considered is proportional to this structure but is standardized so that its $i^{th}$ element equals $1. The actual multiplier effect on region i is therefore equal to the $i^{th}$ element of vector $M^{-1}x^i$. This is the element that Table 1 compares to the corresponding diagonal element of $M^{-1}$, which is automatically smaller because losses through imports in this case are not offset by outside injections into exports.

Based on a similar comparison, some authors, particularly Oates and the Carter Report, expressed scepticism over the possibility of effective discretionary intervention in the cycle by "local" governments.[9] The smaller the size of the Keynesian multiplier, the larger and more costly the extent of the discretionary variations in income taxes and government expenditures required to achieve a given impact on the business cycle. Oates and the Carter Report's scepticism, however, was based solely on theoretical considerations. The figures in Table 1 add indispensable empirical support.

Table 1

Actual Multiplier Effects of a $1 Injection into a Given Region, With or Without Parallel Injections Proportional to GDP into the Other Regions, Canada, 1966
(dollars)

| Region | Type of Injection | | Ratio Between Two Effects |
|---|---|---|---|
| | $1 into region and proportional to GDP elsewhere(a) | $1 into region and nothing elsewhere(a) | (col. 2/col. 1) percentage |
| | (1) | (2) | (3) |
| Atlantic provinces | 1.185 | 1.027 | 87 |
| Quebec | 1.512 | 1.155 | 76 |
| Ontario | 1.580 | 1.206 | 76 |
| Prairie provinces | 1.405 | 1.176 | 84 |
| British Columbia | 1.346 | 1.196 | 89 |
| National average(c) | 1.483 | 1.175 | 79 |

Source Calculations by the author.

(a) See description in text.
(b) Diagonal elements of matric $M^{-1}$ of equation 5.
(c) Weighted average of regional multipliers. The weights used are the regional shares of national GDP indicated in the text.

This table reveals that when we switch from a purely regional measure to a federal one, the increase in the multiplier is not as great in practice as we might at first tend to think. Depending on the region, the regional multiplier is a very large

fraction, between 76 and 89 per cent, of the federal multiplier. Furthermore, it is easy to see that because of the large amount of trade between Quebec and Ontario, a "cooperative" injection in these two provinces alone -- $1 in one, an amount proportional to GDP in the other and nothing elsewhere -- raises their multipliers to 1.36 and 1.37 respectively, or 90 and 87 per cent of the corresponding federal multipliers. Finally, the pure regional multipliers illustrated in Table 1 underestimate the regional impact of some expenditures, such as public spending on construction, which has a low import content and is highly labour intensive, and is concentrated at the provincial level, as already pointed out. The figures in Table 1 therefore confirm that if we follow Oates and the Carter Report's reasoning to the letter, the provinces' reluctance to become involved in economic stabilization lacks any serious empirical justification.[10] If, instead, we take the automatic stabilization point of view, we should be glad that the structure of regional trade gives the very small provinces (the Atlantic provinces) federal multipliers that are much smaller (1.19) than the national average (1.48). This means, in effect, that a cyclical shock of a given size is less destabilizing in this region than in the very large provinces (Ontario and Quebec) where the federal multipliers are higher than the national average (1.58 and 1.51). Cyclical instability, already greater than average in the Atlantic provinces, would be even more serious if losses through imports were smaller in these provinces.

## The True Significance of Regional Multipliers

We can even carry this line of thought further and demonstrate that the comparative size of the regional and federal multipliers does not lead to any logical proposal on the desirable degree of provincial discretionary intervention in cyclical regulation. By entering into equation 3 the definition of x given by equation 2 and differentiating the result, we obtain:

$$(6) \quad \Delta y = M^{-1} ( \Delta a + \Delta f + \Delta p).$$

Since the essence of discretionary regulation is to stabilize the incomes vector y at target level $y^*$, in other words to impose on $\Delta y$ a value as close as possible to zero, governments must, in effect, create variations in their expenditures or taxes (f+p) that roughly offset those in autonomous private demand (a) and thus achieve the following:

$$(7) \quad \Delta a + \Delta f + \Delta p = 0.$$

The size of the actual and cross multipliers contained in matrix $M^{-1}$ thus clearly has no logical connection with the problem of determining in what proportion f and p should share the task of cancelling the effects on y of variations in a. In other words, a smaller multiplier does not automatically require greater discretionary intervention, because it reduces the effects of the cyclical disturbances on the economy in the same proportion as the effect of the budget measures designed to offset them.

Vectoral equation 7 contains some implicit propositions on the desirable characteristics of provincial involvement in cyclical regulation. First, the larger the cyclical disturbances ($\Lambda a$) and the larger the provincial budgets' share of the consolidated public sector budget (the higher the $p_i/(f_i + p_i)$ ratios), the more it is possible and desirable for the provinces to contribute actively to the compensation for these disturbances and thus relieve the federal government of some of its stabilization responsibilities because, for both financial reasons and reasons of economic efficiency and income redistribution, the federal government's reluctance to intervene in regulating the economy grows with the scope of the measures required and the decrease in its flexibility. This involves provincial participation in the general effort to stabilize the entire Canadian economy and has no regional aspect. Second, the more the regional structure of destabilizing shocks (the $\Delta a_i$ values) differs from the usual regional distribution of federal spending and taxes (the $\Delta f_i$ values), which we know to be fairly rigid for reasons of economic and political efficiency, the more a truly regional modulating intervention is desirable. Regional differentiation of the $\Delta a_i$ values may arise from a systematic divergence between the regional and national phases of the economic cycle common to all regions or from purely regional random disturbances.

These two proposals in fact give a formal restatement of the heuristic arguments presented at the start of this text. A third proposition emerging from equation 7 deals with the conditions for effectiveness of economic stabilization peculiar to the federal context. The process of continual planning of stabilization policy first requires sharing of information between the two levels of government on the target levels reasonably compatible with regional incomes ($y_i^*$ on the current and recent status of the national and regional economies and on the short- and medium-term economic outlook in view of anticipated international, national and regional disturbances. It must then incorporate an exchange of views on the planned or desired monetary and budget measures at the national and regional levels to deal with destabilizing shocks, so that each party's decisions can take into account the measures planned by the other level of government.

Information Sharing and Achieving a Consensus

Care should be taken, however, not to confuse information sharing and sharing of opinions. As desirable as the first may be, it does not necessarily lead to a consensus and perfect concurrence of the measures adopted by the various authorities. Unless we are to deny the very federal nature of Canada, we must accept that the element of constitutional sovereignty belonging to each of the 11 governments involved will result in 11 individual decisions whose total result will certainly differ

from that obtained if any one of them had total control over the country, although this will not necessarily be any less desirable. The wisdom of federalism in fact lies in diluting the consequences of the triumphalistic possession of the truth by the central government and the often anarchistic differences in opinion at the provincial level. While it may occasionally rule out better decisions, whatever these may be, it nonetheless spreads the risk of bad decisions.

Everything taken into account, then, the historical objection to provincial involvement in cyclical regulation would apply primarily to the uncooperative or independent exercise of this responsibility by the provinces rather than to its intrinsic relevance. This, in fact, emerges from a careful reading of the following passage from the Carter Report:

> "In our view, the provinces should not attempt to pursue independent stabilization policies.
>
> Unless each province took into account what all the other provinces and the federa government were doing, and were going to do, the individual provincial efforts could be offsetting, too extreme, or ill-timed."[11] (emphasis added)

Thus, the presence of losses through imports and Metzlerian analysis of the macroeconomic consequences of regional trade provide more opportunity for stressing the necessity of federal-provincial and interprovincial cooperation on stabilization than for eliminating or limiting the cyclical role of provincial budgets. The Report's position is, of course, less

fortunate when it makes this role conditional on paternalistic centralization of cyclical decisions:

> "Determining when active provincial stabilization policies were necessary, the extent to which they were necessary, and the form they should take would require an over-view of the whole economy that can only be possessed by the federal government.
>
> It would be prudent to work gradually toward a system in which the provinces could play an active stabilization role in co-ordination with federal stabilization policy and under the guidance of the federal government."[12] (emphasis added)

Although understandable in the context of the early 1960s, when provincial administrations were still rudimentary organizations, these remarks obviously can no longer serve as a basis for federal-provincial cyclical cooperation, since the two levels of government have become more jealous of their respective powers and the analytical skills of the provincial Departments of Finance compare much more favourably with the federal Department. The continuing formal and informal talks between the Bank of Canada, the Departments of Finance and the Treasury Boards that result in periodic federal-provincial meetings on the expected economic situation, the desirable measures and the outlook on borrowing markets, currently provide, in our opinion, all the ingredients necessary for informed intergovernmental cooperation that respects the jurisdictions of all. The apparatus for consultation and dialogue that has gradually developed over the past 25 years could not be made more restrictive for the parties without running the risk of triggering a new series of useless intergovernmental conflicts that would destroy the true spirit of federalism.

## Is Provincial Budget Feedback Insufficient?

Just recently, Ontario and Quebec expressed disappointment over a presumed decrease in the cyclical sensitivity of their budgets and over the low degree of this sensitivity compared to the federal budget. In principle, they may now be more reluctant than 10 years ago to adopt expansionist budget measures. An Ontario study found that:

> "The potential for self-financing macro-stabilization policies such as the Kennedy tax cut of the early 1960's no longer exists in Canada. The fiscal feedback to government from increased employment is largely in the form of UIC savings rather than revenue dividends."[13]

Similar concerns were also voiced in the Quebec budget speech delivered by the provincial Minister of Finance in March 1981:

> "The Quebec government's economic development initiatives are aimed primarily at reducing the federal government's payments to Quebec. One dollar spent by Quebec to provide work for an unemployed worker registered with the Unemployment Insurance Commission results in a gain of 70 cents for the federal treasury, a recuperation of 5 cents for the Quebec treasury and an increase of only 25 cents in the purchasing power of Quebec residents.[14] (Unofficial translation.)"

It will be noted, however, that the Minister's statement deals with the attempts to develop the economy or increase its potential rather that to stabilize the economy around a certain potential. We will still analyse the consequences of the Quebec study, however, as well as those of the Ontario study, from the strict viewpoint of economic stabilization used here. We have noted that the statement in the Quebec budget speech is of some interest with respect to the sharing of responsibilities and costs between the two levels of government in the field of development and should be given special attention when the fiscal arrangements are renewed.

To understand the Ontario study's statements, let's consider the following equations:

(8) $Y = \mu (D_o + G)$ (national income equilibrium)

(9) $T_i = T_{oi} + \tau_i Y, \; i = 1, 2$ (net taxation functions)

(10) $S_i = T_i - G_i \; , \; i = 1, 2$ (definition of budget balances)

where:

$Y$ = national income

$\mu = [1 - \delta(1 - \tau_1 - \tau_2)]^{-1}$ = Keynesian multiplier

$\delta$ = marginal propensity to spend

$D_o$ = autonomous private demand

$G = G_1 + G_2$ = public expenditures on goods and services

$T_i$ = income taxes less transfers (i = 1,2)

$S_i$ = budget balance (i = 1,2)

$T_{oi}$ = autonomous level of net taxation (i = 1,2)

and where indices 1 and 2 designate the federal and provincial governments respectively. This is a system of five equations to determine the five endogenous variables Y, $T_1$, $T_2$, $S_1$ and $S_2$. The net effect of a variation in public expenditures on goods and services on the budget balances is given specifically by the expression:

$$(11) \quad \frac{\Delta S_i}{\Delta G} = -1 + \tau_i \mu , \qquad i = 1, 2.$$

Thus, an increase in G equal to \$1 directly reduces the budget balance by \$1, but through its favourable multiplier effect on national income and therefore on net taxation, indirectly increases it by $\tau_i \mu$ dollars (i = 1,2). This last effect, known as budget feedback, allows for at least partial self-financing of the expansionist measure. It is this aspect that concerns the two provinces. Ontario claims that the demographic changes of the last 15 years, particularly the surge of young people and women entering the labour market and the ranks of the unemployed, and the revision of the Unemployment Insurance Act (1971) have decreased the value of the traditional Keynesian multiplier ($\mu$) and the marginal cyclical rates of net taxation ($\tau_1$ and $\tau_2$) for the two levels of government, but particularly at the provincial level. Budget feedback ($\tau_1 \mu$ and

$\tau_{2\mu}$) would be diminished as a result, particularly at the provincial level. As we have seen, the recent Quebec budget speech also stressed the considerable disproportion between the federal ($\tau_1$) and provincial ($\tau_2$) marginal rates of net taxation. The countercyclical sensitivity of federal-provincial transfers is variable from one province to another depending on the importance of these transfers (equalization, abatement for Quebec, etc.) and constitutes and additional factor that weakens the provinces' marginal rates and strengthens the federal marginal rate.

The CANDIDE model was used to measure the marginal rates $\tau_1$ and $\tau_2$, which indicate how much the federal and provincial budget balances vary following a cyclical change of one in GNP.[15] Taking into account the functioning of the Canadian economy as a whole, CANDIDE calculates that for each additional dollar of national income, about 28 cents ($\tau_1$) is returned to federal coffers (about 13 cents of this in savings on Unemployment Insurance benefits), 10 cents return to provincial coffers and 62 cents remain in the private sector.[16] This approximate 28:10:62 distribution is not strictly comparable with the 70:5:25 distribution established by the Quebec budget for the three sectors. The Quebec distribution actually applies to the fraction of the increase in provincial revenue that appears in the form of an increase in the wage mass of newly employed unemployment insurance recipients, which is less than 40 cents on the dollar. Moreover, the Quebec study appears to include the

loss of federal transfers to Quebec caused by the growth in the economy, which CANDIDE does not include. These adjustments and a few others not worth mentioning here reconcile the figures from the two sources. For the purposes of our analysis of all government and private sector income in Canada, we will use the CANDIDE calculations, which confirm the existence of a 3:1 ratio (28 cents:10 cents) of the federal net taxation rate to the aggregate provincial rate.

The Ontario study's analysis of the marginal rates $\tau_1$ and $\tau_2$ is incomplete, however, because it examines only the effects of demographic change, which probably lowered $\tau_1$ and $\tau_2$ but inflated $\mu$, and of the revisions to the Unemployment Insurance Act, which increased $\tau_1$ and lowered $\tau_2$ and $\mu$. Not only are the direction and numerical importance of these effects poorly measured, but no care has been taken to also consider the upward trend imparted to $\tau_1$ and $\tau_2$ by the progressivity (in real terms) of the tax system, the transfer of tax points from the federal government to the provinces and the compression exerted on $\mu$ by the rise in marginal propensities to save and import which has undoubtedly occurred over the past 15 years.[17] The signs and approximate magnitudes of these various influences on the marginal rates of net taxation, on the Keynesian multiplier and on budget feedback are quite variable and it is mathematically impossible that their net effect would have been to <u>substantially reduce</u> the potential for self-financing of expansionist budget measures in Canada compared to the early 1960s, as the Ontario study claims but fails to support.

Nonetheless, as observed, the CANDIDE simulations would appear to indicate that the budget feedback is almost three times greater at the provincial level than at the federal level. Applied to federal and provincial tax returns of 28 and 10 cents respectively from a one dollar cyclical variation in national income, a Keynesian multiplier of 1.5 would mean that for each additional dollar of public expenditure injected into the economy, the federal government would recuperate approximately 42 cents ($\tau_1\mu$) and the provinces about 15 cents ($\tau_2\mu$). Could it be that the provinces are more reluctant to implement expansionist measures that would benefit the federal treasury almost three times more than their own?

This is not impossible, since the provinces hold sole responsibility for their preferences, understanding of the economy and budget decisions. There is, however, a serious risk that such fears are unfounded, for two reasons. First, the degree of budget feedback ($\tau_2\mu$) also constitutes <u>a measure of a budget's cyclical instability</u> at the provincial level, since it measures the effect on the budget of <u>any</u> cyclical disturbance and not just those arising from budget intervention. It is quite understandable that the provinces would prefer, ideally, to see their income drop very little during a recession (low $\tau_2\mu$) and increase substantially in a period of growth (high $\tau_2\mu$). No tax system and no federal-provincial arrangement could guarantee this privilege, however. They must therefore choose between a system of high budget instability in periods of growth and recession, or

low budget instability in both phases. A true appreciation of the "yo-yo" of continual ups and downs in the business cycle obviously reveals that the reason why provincial revenues rise more slowly than federal revenues in a period of growth is precisely because the opposite has occurred during the preceding recession. This, then, is only a normal return. Over a longer period, where the ups and downs of the cycle balance out and the growth of the economy's potential dominates, neither of the two levels gains ground on the other.

Second, from the standpoint of cyclical management, it is clear that the fairly moderate budget feedback of which Quebec and Ontario complain better serves economic stability than an alternative tax system in which the provincial budgets would be more sensitive to the cycle. The comparatively small degree of sensitivity of their receipts to the phase of the cycle is in fact a strong incentive for the provinces to help moderate the swings of the economy, since it reduces the size of the cyclical deficits for which the provinces must bear the financial burden during a recession and since it moderates the growth of their expenditures by giving them only a modest financial advantage when the economy again begins to grow, and in a very appropriate way from a stabilization viewpoint. It should also be remembered that for the greater part of the last two decades, analysts of the cycle and economic stabilization have suggested reforms specifically designed to further <u>increase</u>, rather than decrease, the cyclical stability of provincial budgets.

## Is Provincial Budget Feedback Excessive?

Is it actually worthwhile increasing the cyclical stability of provincial revenues through a mechanism that would transfer financial resources to and from them in a countercyclical way or would improve their access to reasonably priced credit during a sharp economic decline requiring extensive and prolonged use of borrowing? Three major proposals have been put forth on this matter over the past 15 years.

In 1966, the Carter Report proposed that during troughs in the cycle, federal transfers offset the loss in return from provincial income taxes in relation to a full-employment situation. In peaks, on the other hand, the central government would use interest bonuses as an incentive for the provinces to deposit all income tax receipts above the full-employment level in a special fund.[18] Thomas Wilson of the University of Toronto recently reintroduced the first aspect of this proposal by extending it to stabilization of municipal revenues by the provinces.[19] In 1971, André Raynauld suggested the creation of a Regional Stabilization Fund.[20] This would be a non-profit financial intermediary issuing its own securities guaranteed by the federal government and lending the product of these securities to the provinces at federal interest rates up to a maximum amount determined on the basis of the health of the economy, through a federal-provincial agreement or, in the case of a disagreement, by the federal government. Up to these

maximum amounts, the institution would thus cancel the interest provincial securities would normally bear, thereby lessening the provinces' reluctance to incur larger deficits during economic slumps. Raynauld's proposal is more modest than the Carter Report, it does not include new intergovernmental transfers, but instead a reduction in the cost and an improvement in the availability of credit to the provinces. In 1978, Robert Lacroix and Yves Rabeau repeated the Carter Report's proposal and introduced the idea of a Stabilization Fund.[21] The Fund would add a supplementary countercyclical element to present federal-provincial transfers, to increase the cyclical stability of provincial revenues. The amounts available would be determined each year through federal-provincial consultation on the economic outlook and regional and national employment objectives. The Fund would primarily cover the financing of public infrastructures selected from a list of eligible projects.

Assuming that the federal government covered the entire loss in tax returns suffered by the provinces due to a slowdown in the economy, how much would this cost it during a "good" recession that, for example, resulted in a cumulative excess in unemployment of 4 percentage units in three years? A loss of this extent would be equivalent to about $30 billion in output for the Canadian economy, or 10 per cent of the current GNP of $300 billion, since each rise in the unemployment rate of one percentage unit is normally accompanied by a loss in output

equal to 2.5 per cent of GNP. Since each one dollar variation in GNP leads to a variation of about 10 cents in provincial revenues, the provincial treasuries would thus suffer a cumulative loss of revenue of $3 billion, an average of $1 billion a year. This figure represents about 1.5 per cent of the 1981-82 federal budget and 7 per cent of all scheduled federal-provincial transfers. The Carter Report's and Lacroix and Rabeau's proposals do, however, intend the system to be self-financing through an equivalent reduction in federal-provincial transfers during periods of economic growth. In this manner, it would not be a net addition to the federal government's financial responsibilities over the long term. The cyclical sensitivity of the budgets of the two levels of government would be significantly altered, however, since the budget feedback resulting from a change of one unit in national income would drop from 10 cents to nil at the provincial level and rise from 28 to 38 cents at the federal level. Thus, the price of provincial budget stability would be increased federal budget instability.

It is by no means certain that the advantages of the Carter, Raynauld and Lacroix-Rabeau proposals outweigh their disadvantages. First, there is no conclusive empirical proof that provincial budgets have a systematically destabilizing cyclical influence, as demonstrated by Courchene and Robinson in 1968 and Rabeau and Lacroix themselves in 1978.[22] It is true that the reasons for the provinces' fairly stabilizing behaviour are still poorly understood. But we must not overlook the fact

that the cyclical elasticity of their revenue is only 0.5; a variation of $1 in national income therefore changes their receipts by only 10 cents, while the receipts themselves represent over 20 per cent of GNP. In comparison, the federal budget's cyclical elasticity is about 1.5. Nor are the cost and availability of credit for the provinces as different as is generally claimed from the financial conditions applying to the federal government because of its predominant role in the short-term market and the greater liquidity of its long-term securities. The average difference between the return on provincial debts and that on federal debts was only about 150 base units 10 years ago and today is only 100 units. Nor has anyone ever demonstrated the extent of its dissuasive effect on provincial borrowing. The recent propensity of the two large central provinces to finance their operations through borrowing is actually more compatible with the absence of this type of effect.

Second, there is reason to fear that the pursuit of perfect cyclical stability of provincial budgets suggested by the Carter Report may dangerously aggravate the instability of the federal budget. By raising federal budget retroaction from 28 to 38 cents for a unit variation in national income, the cyclical elasticity of the federal budget feedback increases from 1.5 to 2.1. Just as excessive provincial budget elasticity might produce a destabilizing behaviour among the provinces, excessive federal budget elasticity might produce a distorted orientation

at that level. We must seriously question whether the proposed alternative system raises this danger and whether the "elasticity status quo" -- a ratio of 0.5 at the provincial level to 1.5 at the federal level -- does not constitute a satisfactory compromise between the two extremes, ratios of 1:1 or 0:2 that might trigger a destabilizing behaviour among the provinces or by Ottawa, respectively.

Third, it is clear that the proposals under study would be highly generative of the type of intergovernmental conflicts Canada could well do without. Determining the total and regional amounts to be made available to the provinces would actually require a prior annual agreement on employment objectives, the degree of budget feedback, the economic outlook and borrowing policy at the national and regional levels. It would also be utopian to expect Ottawa to bestow integral budget stability on the provinces without placing strict requirements on the management and use of the funds in question and on the provinces' financial policies. All of these points could obviously intensify the political tensions between governments. Such tensions are inevitable in a federal country and must not be used as a pretext for inaction when the better interests of the country are at issue. However, in view of the limited advantages anticipated and the presumed extent of the disadvantages contained in the Carter, Raynauld and Lacroix-Rabeau proposals, is it worth plunging the country into a new hornet's nest of political conflicts?

## Conclusion

Given the considerable relative importance of the provinces in Canada's economy, the provincial budgets have a major impact on the regional and national business cycles, whether it be accidental or intentional. This being the case, it would be wiser for the provinces' cyclical actions to be informed and deliberate than uninformed and haphazard.

Using the principle of diversification of instruments in economic policy theory as a basis, the first part of this text demonstrated why and how the failure to use provincial budgets for regulating purposes diverts the economy from the social optimum. In this type of situation, federal tools for cyclical intervention -- monetary policy and federal budget policy -- bear the full burden of cyclical regulation and overusing them hinders achievement of economic efficiency, distributive justice and economic growth, while failing to stabilize the economy to the extent that could be achieved through intergovernmental cooperation. The loss of social return is naturally greater in areas where the provinces have a marked advantage, such as the regional differentiation of stabilization policy required by the various regional differences in the business cycle and specifically provincial cyclical disturbances. Explicit regional differentiation of federal stabilization policy would prove economically costly and politically difficult to formulate.

The principle of provincial participation in attempts to regulate the cycle is now well established in the theory and practice of stabilization policy in Canada. For this reason, the second part of this text has attempted to measure the scope, limits and terms of application of this provincial involvement and of the intergovernmental cooperation it implies, rather than to question its relevance.

After briefly restating that the characterization of natural regional unemployment rates and their compatibility with the natural national unemployment rate are indispensable pre-requisites for a cooperative cyclical initiative, we stressed that the provinces' cyclical budget policy is subject to the same general constraints as the federal policy -- uncertainty, delays, rigidities, secondary effects on equity and efficiency -- and that it cannot hope to fine-tune the economy.

We then measured the empirical extent of "import leakages", often cited as an objection to <u>independent</u> cyclical action by the provinces. Based on a Metzlerian numerical model of macro-economic activity for Canada's five major regions, we found that the oft-expressed theoretical fear that import leakages would drain off a significant share of the expansionist multiplier effect of an isolated provincial measure compared to a federal or cooperative measure is without serious empirical basis. The value of the Keynesian multiplier in the case of an isolated provincial measure is in fact equal to a large fraction -- between 75 and 90 per cent -- of the federal or cooperative

multiplier. If we take into account only the stabilization cooperation between Quebec and Ontario, confirmed by recent budget history, the ratio of the multipliers is about 85 or 90 per cent, depending on the region.

Carrying the analysis even further, however, we explained why the "dispute over regional multipliers", regardless of its outcome, would produce no logical proposal for the desirable degree of discretionary regulating intervention by the provinces. Regardless of the size of the actual and cross regional multipliers, the scope of the required federal or provincial discretionary intervention depends only on the extent of the national or regional cyclical disturbance to be offset. A smaller multiplier does not require a greater intervention, since it diminishes the effect of the disturbance in the same proportion as that of the corrective measure. Analysis of the regional multipliers leads us instead to reaffirm more clearly three propositions central to the subject of provincial cyclical action: (1) active contribution by the provinces to national stabilization efforts becomes increasingly necessary as the anticipated cyclical disturbances increase in size and as the provincial budgets represent a larger share of the consolidated public sector budget; (2) active provincial contribution to regional stabilization efforts becomes more necessary as the regional structure of the destabilizing shocks departs from the usual regional distribution of federal expenditures and taxes; and (3) information sharing on the real, past, present and future

functioning of the economy and on the respective objectives of the various interveners, as well as exchanging views on the monetary and budgetary measures to be considered, sharply increase the odds of success for the cooperative stabilization initiatives.

It was stressed, however, that in a federal context, sharing of information would not automatically lead to the same opinions on the desirable measures. While this does carry a cost, it also has an advantage: while federalism does occasionally rule out the best decisions, whatever they may be, it also spreads the risk of making bad decisions. In light of this view of federalism, we expressed our agreement with the Carter Report's objection to the uncooperative exercise of provincial cyclical responsibility, but also our opposition to the paternalistic centralization of decision-making power which it advocated. In this respect, we expressed our satisfaction with the present functioning of the mechanism for consultation and dialogue between the various federal and provincial interveners which has developed over the past 25 years in Canada with regard to stabilization policy. In our opinion, it would be useless and dangerous to make this mechanism more restrictive on the parties involved.

Moving on to current issues, we argued that, strictly from the viewpoint of economic stabilization, the concern shown in a recent Ontario study over a supposed decline in the cyclical

sensitivity of their budgets and the weakness of this sensitivity compared to the federal budget is exaggerated. Nonetheless, although the economic analysis in the two documents is technically incomplete, the CANDIDE model simulations do appear to indicate that the retroaction on the provincial budgets of a $1 variation in national income is still almost three times smaller than on the federal budget, 10 cents compared to 28 cents. It is understandable that the provinces are disappointed with the small degree of self-financing these figures imply for their expansionist measures. It must also be noted, however, that these same factors that prevent provincial revenues from growing too fast during a recovery also protect them from a sharp drop during a recession. The end result is nil: no tax arrangement can guarantee that provincial revenues drop more slowly in a recession and rise faster in a period of recovery. In addition, we believe that the moderated budget feedback of which the Ontario and Quebec documents complain is desirable for economic stability because, by giving the provinces some protection of their revenues from cyclical fluctuations, it spares them from serious financial difficulties during a slump and increases the odds of a more stabilizing provincial budget orientation for the economy in both phases of the economy. The federal-provincial ratio of budget feedback would require a careful study of its consequences on the sharing of responsibilities and the cost of economic development between the two levels of government.

Should this reasoning be carried further to increase the cyclical stability of provincial revenues even more through various mechanisms, as proposed by the Carter Report in 1966, André Raynauld in 1971 and Robert Lacroix and Yves Rabeau in 1978? We have estimated, for example, that the elimination of all cyclical sensitivity of provincial revenues through federal cyclical transfers, as proposed by the Carter Report, would cost the federal treasury about $1 billion in each of the three years a "good" recession could be expected to last. The sum involved should, by rights, be repaid during the recovery, but the cyclical instability of the federal budget would be sharply increased. The proposals by Raynauld and Lacroix-Rabeau have a smaller financial scope. Three reasons have convinced us to reject these solutions, however, and favour the status quo: (1) there is no conclusive empirical proof that, under the present tax arrangements, the provincial budgets are automatically destabilizing, since their cyclical elasticity is already relatively small and the dissuasive effect of the cost and availability of credit on the volume of provincial borrowing is not clear; (2) the increased cyclical instability of the federal budget resulting from larger cyclical transfers to the provinces would threaten to simply transfer the provinces' destabilizing behaviour, if there is any, to the federal level; and (3) determining the yearly amounts of federal cyclical transfers and their repayment to the federal treasury, or the amounts of federally guaranteed loans to the provinces under Raynauld's plan, and the conditions that might be imposed on the provinces in return would be highly generative of intergovernmental conflicts.

FOOTNOTES

1 In 1979, the provinces' autonomous receipts represented 14.6 per cent of GNP, while federal receipts represented 16.5 per cent. The provinces also made close to 80 per cent of all public investments, in addition to having a decisive influence on a very large portion of investments in the quasi-public sector and by crown corporations and municipalities. The importance of this consideration was recently stressed by Robert Lacroix, Yves Rabeau and Abraham Assayag, "La stabilisation économique et les régions : le cas canadien", Research report submitted to the Economic Council of Canada (University of Montreal, CRDE, 1978).

2 See Economic Council of Canada, Living Together: A Study of Regional Disparities (Supply and Services Canada, Ottawa, 1977), Chap. 6; and Pierre Fortin, Unemployment, Inflation, and Economic Stabilization in Quebec, (Montreal, C.D. Howe Research Institute, 1980), Chap. 3.

3 See Pierre Fortin, "On Economic Dynamics and the Theory of Economic Policy", in Robert A. Mundell and B. Elayne van Snellenberg (eds.), Policy Formation in an Open Economy, Vol. 2 (University of Waterloo, Waterloo, 1975) pp. 439-45; and William Brainard, "Uncertainty and the Effectiveness of Policy", American Economic Review, Vol. 57 (May 1967), pp. 411-25.

4 Canada Royal Commission on Taxation, Report of the Royal Commission on Taxation, Vol. 2 (Ottawa: Queen's Printer, 1966), pp. 102-4.

5 Clarence L. Barber, Theory of Fiscal Policy as Applied to a Province, Study prepared for the Ontario Committee on Taxation (Toronto: Queen's Printer, no date). Recent work includes that by Y. Rabeau (1970), F.C. Miller (1971, 1976, 1979), A. Raynauld (1971), D.A.L. Auld (1975, 1978, 1980), T.A. Wilson (1977), Y. Rabeau, R. Lacroix and A. Assayag (1978), P. Fortin (1980) and the Economic Council of Canada study mentioned in footnote 2 as well as its related technical reports.

6 P. Fortin, op. cit., pp. 103-4.

7 Richard C. Zuker, "The Pattern of Regional Trade in Canada" (Department of Regional Economic Expansion, Economic Development Analysis Division, May 1977), Tables 6 and 7.

8 Zuker's data enable us to perform the calculations for the ten provinces rather than for the five regions only. The actual provincial multipliers obtained -- the diagonal elements of $M^{-1}$ -- are:

| | |
|---|---|
| Newfoundland | 0.996 |
| Prince Edward Island | 0.857 |
| Nova Scotia | 0.977 |
| New Brunswick | 0.981 |
| Quebec | 1.155 |
| Ontario | 1.206 |
| Manitoba | 1.056 |
| Saskatchewan | 1.091 |
| Alberta | 1.117 |
| British Columbia | 1.197 |

Thus, Ontario, Quebec, British Columbia, and more recently, Alberta, have the highest multipliers, and the Atlantic provinces have the lowest.

9 Wallace E. Oates, "The Theory of Public Finance in a Federal System", Canadian Journal of Economics, Vol. 1 (February 1968), pp. 37-54; Royal Commission on Taxation, op. cit., pp. 102-3.

10 This conclusion meshes well with F.C. Miller's, "The Feasibility of Regionally Differentiated Fiscal Policies", Discussion Paper 1979-6 (University of Guelph, Department of Economics, 1979). Miller's multipliers are higher than ours because the marginal propensities to spend that he uses are higher than ours; the meaning of the results is the same, however..

11 Royal Commission of Taxation, op. cit., p. 102.

12 Ibid., p. 103.

13 Ministry of the Treasury, Economics and Intergovernmental Affairs, "Reassessing the Scope for Fiscal Policy in Canada", Ontario Tax Study No. 15, Toronto, 1978, p. 19.

14 The Honourable Jacques Parizeau, Budget 1981-1982: Discours sur le budget, Ministry of Finance, Quebec City, March 10, 1981, p. 18.

15 R.S. Preston, B.L. Eyford and H.M. Saiyed, "An Essay on Revenue and Spending Elasticities by Level of Government", working paper, Economic Council of Canada, Ottawa, February 1981.

16 R.S. Preston et al., op. cit., Tables 31 and 36.

17 It is generally recognized that the 1972 fiscal reform and indexing of personal income tax to the cost of living since 1974 have made little change in $\tau_1$, $\tau_2$ and $\mu$; see John Bossons and Thomas A. Wilson, "Adjusting Tax Rates for Inflation", Canadian Tax Journal, Vol. 21 (May-June 1973), pp. 185-99, and Patrick Grady and Donald R. Stephenson, "Some Macroeconomic Effects of Tax Reform and Indexing", Canadian Journal of Economics, Vol. 10 (August 1977), pp. 378-92.

18 Royal Commission on Taxation, op. cit., pp. 94-6.

19 Thomas A. Wilson, "The Province and Stabilization Policy", in Issues and Alternatives 1977: Intergovernmental Relations, Ontario Economic Council, Toronto, 1977, p. 130.

20 André Raynauld, "Pour une politique de stabilisation régionale", Adminsitration publique du Canada, Vol. 14 (Autumn 1971), pp. 344-53.

21 Robert Lacroix et al., op. cit., Chap. 6.

22 Thomas J. Courchene and T. Russell Robinson, "Fiscal Federalism and Economic Stability: An Examination of Multi-Level Public Finances in Canada, 1952-1965", Canadian Journal of Economics, Vol. 2 (May 1969), pp. 165-89; and Robert Lacroix et al., op. cit., pp. 53-60 and 175-8.